Suezie Kim, MD
Orthopedic Surgeon • Sports Medicine

Procedure: _____

PT PROTOCOL

Knee PCL Injury — Non-Operative

Rehabilitation Protocol

Weight-Bearing Status

ONLY IF DIFFERENT FROM PROTOCOL BELOW

Weight-bearing and brace use may be more conservative for a higher-grade tear or a combined ligamentous injury. Follow the weight-bearing status in the phases below unless a different status is indicated here.

☐ **Non-weight-bearing** ☐ **Toe-touch / partial weight-bearing** ☐ **Weight-bearing as tolerated**

Brace/precautions: _____

1	2	3	4
Weeks 0–4	**4–8 Weeks**	**8–12 Weeks**	**12+ Weeks**
Max protection; PCL brace locked, prone ROM, no hamstring loading	Full WB off crutches; AROM, double-leg strengthening, balance	Advanced strengthening; graded squat/ lunge progression, running when cleared	Brace discontinued if criteria met; hamstring work, plyometrics, return to play

Milestones above are goals, not guarantees; progression is criterion-based. Higher-grade tears may follow a prolonged timeline, shifting each phase later by several weeks.

Phase 1 Weeks 0–4

Weight-Bearing: Partial weight-bearing with crutches, weeks 0–2; weight-bearing as tolerated with crutches, weeks 2–4. Begin weaning crutches around week 4 once effusion is controlled and straight leg raise is performed without an extension lag.

Brace: PCL brace locked at 0° (full extension), worn at all times including sleeping.

Range of Motion

- Weeks 0–2: passive range of motion 0°–90°, performed **prone** to protect the healing PCL and avoid posterior sag of the tibia.
- Weeks 2–4: passive range of motion to tolerance, prone or supine.
- Avoid hyperextension throughout this phase.

Therapeutic Exercises

- Patellar mobilizations; multi-angle quad isometrics; short-arc quad (50°–0°) beginning week 2; straight leg raises.
- Non-weight-bearing hip activation: sidelying hip abduction, clamshells.
- Ankle pumps; gastrocnemius stretch.
- Mini-squats/leg press, 0°–70°; weight shifts.
- Stationary bike, no resistance, beginning week 3.
- *No hamstring strengthening — held throughout this phase and Phases 2–3 to protect against posterior tibial translation while the PCL heals.*

Phase 2 Weeks 4–8

Weight-Bearing: Full; crutches discontinued.

Brace: Continue PCL brace.

Range of Motion

- Progress to full active range of motion, pain-free, working toward 0°–130° by the end of this phase.
- Continue to avoid hyperextension and hamstring loading.

Therapeutic Exercises

- Continue patellar mobilizations.
- Double-leg strengthening (leg press/hip sled), full extension to 70° flexion.
- Static lunge, no deeper than 45° of knee flexion.
- Wall sits, progressing from a long hold toward a shorter, deeper hold.
- Gluteal progression: double-leg bridge on stability ball with knees extended, single-leg deadlift with knee extended, step-ups, single-leg squat.
- Non-impact single-leg proprioception and balance work.

Phase 3 Weeks 8–12

Weight-Bearing: Full. Continue PCL brace; brace is anticipated to be discontinued at 12 weeks if criteria are met (see Phase 4).

Therapeutic Exercises

- Increase resistance on double- and single-leg press or hip sled work.
- Progress squat and lunge loading, least to most demanding: one-leg squat → wall squat with feet farther from the wall → wall squat with feet closer to the wall; split squat → forward lunge (short step) → forward lunge (long step) → side lunge.
- Continue proprioception and balance progression; gluteal activation and hip/pelvis control emphasis; core strengthening for dynamic knee control.
- Initiate a running program once quad strength is greater than 80% of the contralateral side.

Phase 4 Weeks 12+

Weight-Bearing: Full. Discontinue PCL brace at 12 weeks if criteria are met.

Therapeutic Exercises

- Continue resistance progression across all strengthening, shifting emphasis toward muscular power.
- Isolated hamstring exercises may now begin, in a restricted 0°–55° range with an emphasis on the medial hamstring to help control tibial external rotation — this is the first phase in which isolated hamstring loading is introduced.
- Plyometrics, beginning double-leg and progressing to single-leg.
- Functional return-to-sport/return-to-work drills.
- *Return to play when active range of motion is full, quad strength is greater than 90% of the contralateral side, there is no evidence of giving way, return-to-play testing has been completed, and the surgeon has cleared return to sport.*